UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,769	11/04/2003	Karl Rothenhofer	Q77897	5363

23373 7590 04/13/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
WONG, XAVIER S	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/699,769	ROTHENHOFER ET AL.	
	Examiner	Art Unit	
	Xavier Wong	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4th Nov 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4th Nov 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4th Nov 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in **Europe** on *5th November 2002*. It is noted, however, that applicant has not filed a certified copy of the **EP 02360304.6** application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

The information disclosure statement submitted on *4th November 2003* has been considered by the Examiner and made of record in the application file.

Drawings

The drawings are objected to because figures **1** through **4** should contain word labels that describe the entities/modules instead of only showing *number labels*. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and

where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1 – 3, 5, 7 – 10** are rejected under 35 U.S.C. 102(b) as being anticipated by **Balatoni et al** (**U.S Patent 6,282,204 B1**).

Consider claim **1**, **Balatoni et al** clearly show and disclose an IDSN multiplexer system *10*, which includes a central office terminal (COT) / line card (LC) *15* and remote terminal (RT) *20* – as a network termination unit (col. *3* lines *24-28*; figs. *1* & *5*), which is connected to a switch, via the LC, where conventional analog telephone signals may be provided via twisted pair line *27* (col. *3* lines *41-43*). The RT unit comprises a single-twisted pair HDSL transceiver *305* – therefore, a SHDSL for single-pair HDSL – (col. *2*

lines *4-8*) that converts a multiplexed binary signal, including user broadband/data corresponding to send-direction signals of the voice channel and the 2B+D (ISDN-B channels 1 through 2 & ISDN-D channel 1) ISDN service (col. *1* lines *32-38* & col. *11* lines *64-67*). RT is coupled, via a twisted pair, to subscriber equipment *31*, such as an analog telephone or *Plain Old Telephone System* POTS – PSTN terminal (col. *3* lines *47-50*; figs. *1* & *5*). A codec filter *311*, which connects to SLIC *313* subscriber link interface circuit, in the RT converts analog signal into digital signal – PCM process – to the designated ISDN-B channel (POTS) as shown in figures *1* and *5* (col. *13* lines *41-48*). Furthermore, the HDSL transceiver *305* converts multiplexed binary signals on line *325* into 2B1Q protocol signals and sent to HDSL transformer *301* for a 4-wire to 2-wire conversion (col. *14* lines *41-51*; fig. *4*).

Consider claim **2**, and as applied to claim **1**, **Balatoni et al** clearly show and disclose the SLIC embodied in the RT converts the 2-wire (analog) telephone signal on twisted pair (subscriber line) *33* at the subscriber location to 4-wire (ISDN/digital) format; SLIC also conditions analog signals and converts received-direction and send-direction portions of the analog signal from a 4-wire (ISDN/digital) format to a 2-wire (analog) format, so that both analog and ISDN subscribers can connect to a common network termination unit in the NMDS protocol (col. *13* lines *63-67*, col. *14* lines *1-5* &*17-27*; figs. *1* & *5*). The HDSL transceiver *305* converts multiplexed binary signals on line *325* into 2B1Q protocol signals and sent to HDSL transformer *301* for a 4-wire to 2-wire conversion (col. *14* lines *41-51*; fig. *4*).

Consider claim **3**, and as applied to claim **1**, **Balatoni et al** clearly show and disclose an ISDN transceiver *317* receives ISDN signal that has been converted from a 2-wire to a 4-wire format from a DSL transformer *319* (col. *14* lines *27-31*). The ISDN portion inside the RT is clearly connected to a pool of ISDN NT1 channels according to figure *1*.

Consider claim **5**, and as applied to claim **1**, **Balatoni et al** clearly show and disclose the remote terminal (RT) comprises a multiplexer/framer *307* that controls the data that should be allocated to ISDN-B channels to the SLIC through twisted-pair cable *375* in figure *4* (col. *14* lines *17-51*).

Consider claim **7**, and as applied to claim **1**, **Balatoni et al** clearly show and disclose the POTS is served by two bearer channels (2B) and the ISDN is served by one data channel (D) for the standard ISDN equipment is 2B+D (col. *2* lines *4-8* & col. *11* lines *64-67*), wherein the SLIC – as the analog subscriber unit – serving two B channels, so the teachings of two analog terminal units are considered equivalent (col. *13* lines *63-67* & col.*14* lines *1*-5; fig. *4*); and the ISDN transceiver – as the ISDN line termination unit – serving the ISDN NT1 through a DSL transformer and a U-interface (col. *13* lines *31-40*; fig. *4*). The SLIC (interface *33*) exchanges 2-wire narrowband analog signals into 4-wire broadband digital format for the HDSL (col. *14* lines *19-31*).

Consider claim **8**, **Balatoni et al** clearly show and disclose the Line Card (LC 15), – as a subscriber line board – which is connected to a switch (col. *3* lines *41-43*), that embodies single-pair HDSL (SHDSL) transceiver that transfers (broadband) data and sends signals over two B channels (2B) and one D channel and receives signals over three B channels (3B) and one D channel (D) (both directions) over twisted-pair lines wherein channel data transmissions are controlled by clock signals – therefore, synchronous (col. *2* lines *4-8*, col. *4* lines *34-64*, col. *10* lines *3-10*, *65-67* & col. *11* lines *1-7*, col. *12* lines *66-67*, col. *13* lines *1-30*; fig. *3a-b*). The HDSL transceiver sends 2B1Q protocol signals to HDSL transformer and receives incoming 2B1Q signal to perform exchanges on 4-wire broadband (218 kbps) to 2-wire narrowband (64/160 kbps) format conversion so the signal is suitable for transmission over HDSL *25*, which can transport both analog B channel and digital D channel signals (col. *6* lines *28-58*, col. *10* lines *25-35*& col. *15* lines *56-62*; figs. *2,4* & *5*).

Consider claim **9**, and as applied to claim **8**, **Balatoni et al** clearly mention Line Card *15* embodies an HDSL transceiver *113*, ISDN connection U-interface *29*, and POTS (PSTN) connection interface *27* as shown in figure *1* (col. *3* lines *8-47*).

Consider claim **10**, **Balatoni et al** clearly show and disclose the method of transferring (receiving and sending) signals and data between the remote terminal (RT 20 – network terminal unit) and the line card (LC *15* – analog subscriber unit) (col. *3* lines *24-59* & col. *4* lines *49-64*; figs. *1* & *5*). Broadband (ISDN) packets are transferred

through twisted-pair lines over synchronized ISDN two B channels and one D channel – 2B+D (col. *2* lines *4-26*, col. *12* lines *66-67* & col. *13* lines *1-30*; figs. *1*, *3a-b* & *5*). A codec filter *311*, which connects to SLIC *313* subscriber link interface circuit, in the RT converts analog signal into digital signal – PCM process – to the designated ISDN-B channel (POTS) as shown in figures *1* and *5* (col. *13* lines *41-48*). Furthermore, the HDSL transceiver sends 2B1Q protocol signals to HDSL transformer and receives incoming 2B1Q signal to perform 4-wire to 2-wire format conversion so the signal is suitable for transmission over HDSL *25*, which can transport both analog B channel and digital D channel signals (col. *10* lines *25-35* & col. *15* lines *56-62*; figs. *2,4* & *5*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim **4** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Balatoni et al** (**U.S Patent 6,282,204 B1**) in view of **Phillips et al** (**U.S Patent 6,243,377 B1**).

Consider claim **4**, and as applied to claim **1**, **Balatoni et al** clearly disclose the claimed network termination unit except dynamically allocating ISDN-B channels to analog subscriber line termination unit.

In the same field of endeavor, **Phillips et al** disclose the dynamical allocation of B-channels to telephone (using analog signals) when telephone goes off hook or when it receives an incoming ring (col. *3* lines *25-51*). The analog signals are received by the telephone through a BT socket and a SLIC converts the analog signals to and from digital signals (as analog subscriber line termination unit) (col. *4* lines *4-13*).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of dynamically allocating ISDN-B channels to analog subscriber line termination unit as taught by

Phillips et al, in the network termination unit of **Balatoni et al**, in order to simultaneously transmit both voice and data.

Claim **6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Balatoni et al** (**U.S Patent 6,282,204 B1**) in view of **Phillips et al** (**U.S Patent 6,243,377 B1**) and in further view of **Bhatia et al** (**U.S Patent 6,118,768 B1**).

Consider claim **6**, and as applied to claim **4**, **Balatoni et al** clearly disclose the claimed network termination unit except the dynamic varying of the number of ISDN channels by triggering establishment and/or release of the channels.

In the same field of endeavor, **Bhatia et al** disclose the dynamic channel assignment and monitoring of the number of B-channels allocated to a given ISDN connection when a request to simultaneously establish another ISDN call to a different destination or when e.g. the user disconnects a call (go off hook/release) of a telephone (col. *26* lines *49-65*).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the dynamic varying of the number of ISDN channels by triggering establishment and/or release of the channels as taught by **Bhatia et al**, in the network termination unit of **Balatoni et al** and as modified by **Phillips et al**, in order to allow multi-link connections in a network.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is (571) 270-

1780. The examiner can normally be reached on Monday through Friday 8 am - 5 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Xavier Szewai Wong
X.S.W / x.s.w
4th April 2007